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ABSTRACT

This report primarily addresses the question, "What are the net benefits associated with targeted early childhood investments in Texas?" The expected benefits and costs of targeted early childhood investments are estimated and projected for an illustrative cohort of Texas infants: children 0-1 year old living in families with annual incomes at or below 200 percent of the federal poverty level in the year 2000, the overwhelming majority of them in minority families, especially Hispanic. Net benefit estimates are based on the average cost of more intensive model programs as well as their estimated benefits. Targeted early interventions are assumed to offer participating children (and their families) a mix of services over a 4-year period spanning infancy up to their entry into public kindergarten, at a cost of almost $9,600 per participant per year. The report concludes that the net discounted benefits of targeted early childhood investments for participating Texas children and their families are estimated to exceed $2.47 billion. Taxpayers enjoy net benefits amounting to nearly $3.57 billion, while the net present value of early childhood investments to society is more than $6 billion. (Contains 96 references.) (EV)

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The Net Benefits of Early Childhood Investments:

Findings, Implications and a Texas Agenda

Christopher T. King
Katherine Faliski
Alicia M. Betsinger
Daniel P. O'Shea

June 1999

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Center for the Study
of Human Resources
Lyndon B. Johnson School of Public Affairs
The University of Texas at Austin
3001 Lake Austin Blvd., Suite 3.200 Austin, TX 78703 (512) 471-7891

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We also drew upon earlier work on child care and early childhood development by two of our Center colleagues, Deanna Schexnayder, the Center's Associate Director, and Jody McCoy, now with the Office of the Assistant Secretary for Planning and Evaluation at the U.S. Department of Health and Human Services in Washington, D.C. Jerry Olson, the Center's Chief Economist, offered useful insights on welfare benefits and costs. Karen Franke formatted the final report beautifully. Diane Tucker shepherded the project along from proposal and contract to final report with her usual good grace.

Executive Summary

There has been a dramatic increase in interest in and research on early childhood investments in the 1980s and 1990s. Early intervention, while costly, can yield near- and long-term returns for children and their families, taxpayers, and society as a whole. Failure to intervene can lead to unrealized potential, substantial public and private costs, and a society operating far below its full capacity. This report primarily addresses the question, What are the net benefits associated with targeted early childhood investments in Texas?

Early childhood intervention programs have varied widely in terms of their focus, their scale, the ages of the children served, and the scope or range of services provided. The best known and most studied of these have been the High/Scope Perry Preschool Program, Houston's Parent-Child Development Center, the Carolina Abecedarian Project, Project CARE, and the Syracuse Family Development Research Program.

The expected benefits and costs of targeted early childhood investments have been estimated and projected for an illustrative cohort of Texas infants: children 0-1 year old living in families with annual incomes at or below 200 percent of the federal poverty level in the year 2000, the overwhelming majority of them in minority families, especially Hispanics. Net benefit estimates are based on the average cost of more intensive model programs as well as their estimated benefits. Targeted early interventions are assumed to offer participating children (and their families) a mix of services over a four-year period spanning infancy up to their entry into public kindergarten, at a cost of almost $9,600 per participant per year.

Net Benefits of Targeted Early Intervention

Preliminary estimates of the costs, benefits, and net benefits of targeted early childhood intervention are expressed in 1998 dollars and have been discounted using a 2 percent discount rate.

Program Costs. The total cost of serving 151,830 poor and near-poor Texas infants in targeted early intervention programs is estimated to be $5.65 billion. Participation also leads to increased education costs during late middle and high school, as children who would have dropped out remain in school longer and graduate at higher rates.

Program Benefits. The largest benefits for participants are in the form of lifetime earnings gains of almost $4 billion stemming from raising the high school graduation rates (by 47 percent) and college graduation rates (by 10 percent) of participating children. Participant benefits are offset by increases in federal, state and local taxes and modest reductions in income from welfare.

The primary benefits to taxpayers are four-fold. First, reduced criminal activity yields approximately $5.32 billion in benefits as participating children engage in more productive activities and require less attention from police, courts and prisons. Second, increased output yields benefits to employers amounting to almost $2 billion. The third major taxpayer benefit comes through higher tax payments, amounting to almost $1.5

billion. Fourth, taxpayers benefit from having to spend $746 million less on special education.

Society benefits substantially from targeted early childhood intervention in the form of a $5.97 billion increase in earnings and output and the $5.32 billion reduction in the costs of crime.

Net Program Benefits. The net discounted benefits of targeted early childhood investments for participating Texas children and their families are estimated to exceed $2.47 billion. Taxpayers enjoy net benefits amounting to nearly $3.57 billion, while the net present value of early childhood investments to society is more than $6 billion. Taxpayers are the group that needs convincing most. A public awareness campaign may be required to convince taxpayers of the merits of the case for increasing funding for early childhood interventions.

These net benefit estimates are conservative. Many benefits have *not* been included, mainly due to the lack of reliable data, estimates, or valuation procedures. Their inclusion would further increase projected net benefits for all groups. Among the more important of these exclusions are health benefits, remediation cost savings for employers, intergenerational effects, sibling spillover effects, social welfare benefit reductions, and cognitive improvements for children. In addition, there are various ways the costs of these investment might be reduced, including phasing in the programs more gradually or more tightly targeting them.

The timing of costs and benefits presents a serious challenge for policymakers. While net benefits accrue to all three groups, for the foreseeable future taxpayers and society are in a net *cost* position. It is only after sufficient time has passed for participating children to become productive young adult workers that net costs are transformed into net benefits for taxpayers and society. The basic question is whether these groups have sufficiently long time horizons to see the merits of making such investments.

Policymakers, and hopefully taxpayers and society, should view early childhood efforts the same way they do public education. Public education is an investment that traditionally occurs over 13 years and is expected to yield a wide range of important benefits many years after the initial investment has been made. Early childhood initiatives simply stretch the span of this educational investment by a few years at the front end. Early childhood investments can be expected to yield positive net benefits for taxpayers and society when these individuals reach their mid-to-late twenties in much the same way that our basic investments in public education now do. The payoffs remain substantial for all concerned.

Looking to the Future

Texas taxpayers—encouraged by the promise of long-term net returns in the billions of dollars using even the most conservative assumptions and procedures—may well be convinced that targeted early childhood interventions merit their support. Looking to the future, Texas might take a number of steps towards developing an early childhood agenda.

The best way for Texas to proceed is to identify and invite to the table all of the early childhood stakeholders from around the state, creating a bipartisan, blue ribbon Task Force on Early Childhood. This Task Force should be comprised of business leaders, statespersons, early childhood development providers and experts, the philanthropic community, workforce board representatives, parents, and other interested parties. This Task Force should begin the work of developing a comprehensive early childhood investment agenda to guide Texas well into the 21st Century.

I. Introduction

There has been a dramatic increase in interest in and research on early childhood investments in the 1980s and 1990s. Our knowledge concerning the importance of the years preceding the start of public education as a critical "window of opportunity" for affecting subsequent life events has been broadened and deepened across many different fields (e.g., Barnett 1995, Haveman and Wolfe 1994, and Huston 1999). Early intervention, while costly, can yield near- and long-term returns for children and their families, taxpayers, and society as a whole. Failure to intervene on behalf of very young at-risk children can lead to unrealized potential, substantial public and private costs, and a society operating far below its full capacity. Questions have been raised about the costs and benefits of targeted early childhood interventions, as well as their distribution among groups and over time.

While policymakers and advocates alike have extolled the virtues of early childhood interventions, it is often unclear what they mean by the term. Early interventions can take many different forms, ranging from health programs to promote improved nutrition among young mothers and broad-based welfare programs to special pre-kindergarten educationally oriented programs in poor neighborhoods, among others. This report focuses primarily on "targeted early intervention" programs similar to those examined in recent syntheses by Rand Corporation researchers (Karoly et al. 1998) and others (e.g., Ramey and Ramey 1994, 1998). Such programs tend to address the varied needs of the populations at risk of suffering adverse consequences due to the lack of early investments.

Early Childhood Intervention: Models and Expected Outcomes

Early childhood intervention programs have varied widely in terms of their focus (i.e., parent- or child-focused or a combination), their scale (i.e., pilot/demonstration or large-scale), the ages of the children served, and the scope or range of services provided, among other dimensions (Barnett 1995, Yoshikawa 1995). Notable programs have included those enhancing the quality and extending child care from half- to full-day for up to a year for low-income children and more comprehensive approaches offering health, cognitive, and other services over more than two years for such children. Some (e.g., San Antonio's Avance Program) have been comprehensive, intergenerational programs.

The best known and most studied of these targeted early interventions has been the High/Scope Perry Preschool Program which began in Ypsilanti, Michigan in the early 1970s and served several hundred low-income children aged 3-5 years (Berrueta-Clement et al. 1984). Other important efforts to date include Houston's Parent-Child Development Center, the Carolina Abecedarian Project, Project CARE (Carolina Approach to Responsive Education), and the Syracuse Family Development Research Program, among others. (Major programs and their components are described in Appendix A.)

Several key outcomes are expected from targeted early childhood interventions, though most studies generally have not tracked them for sufficient time periods for results to be fully measured. In general, early investments are thought to enhance the human capital of at-risk children (and families) and, consequently, to yield an array of improvements in the immediate future and especially over the longer term. Key expected outcomes for children participating in such interventions include (e.g., Karoly et al. 1998):

- *Cognitive/emotional development*, including IQ increases and behavioral improvement;
- *Education*, including short- and longer-run achievement, reductions in special education, and increased high school graduation rates;
- *Economic well-being*, including gains in employment and earnings, and reductions in welfare dependency and crime/delinquency; and
- *Health*, including fewer emergency room visits and teen pregnancies.

Children are not the only potential beneficiaries from these early investments. Not surprisingly, the benefits (and costs) of such interventions are shared as well by taxpayers and by society, where the latter is the sum of participants and taxpayers, less any taxes or transfers (e.g., welfare benefits) between the two. For example, if participating children increase their educational achievement over time, taxpayers may enjoy tax relief as special education expenditures fall (or grow more slowly), employers may need to spend less on employee remediation, and society may experience increased productivity.

Importance for Texas

Texas traditionally has not had a strong investment orientation in terms of education, training, or human services. In recent years, however, it has begun to make substantial progress. Positive signs are to be found in the development and implementation of its award-winning Child Care Management System, the creation of several investment oriented funds (i.e., the Smart Jobs, Skills Development and Self-Sufficiency Funds), and its enhanced emphasis on educational accountability . The state legislature recently voted to implement the Child Health Initiative Program (CHIP) statewide for all children in families with incomes up to 200 percent of poverty and to fund a substantial pay raise for teachers. It also appropriated an additional $215 million to expand public pre-kindergarten offerings in the coming biennium, the first such increase in many years.

Policymakers have had difficulty distinguishing between basic operating expenses and real investments—especially those in "human" capital—whose returns may not accrue until well into the future. State budget procedures tend to exacerbate this problem. Many of the costs associated with not investing in such interventions tend to be quite distant (e.g., involvement with criminal justice, enrollment in special education), difficult to associate with the cause (e.g., lost productivity), and hard to register on the state's accounts. Recent research has documented the costs involved with serving children in low-quality child care (Cost, Quality, and Child Outcomes Team 1995; Schexnayder and McCoy 1996). Also, the very rapid and substantial rise in the numbers of working mothers since the early 1990s—in response to the expanded Earned Income Tax Credit, continued economic growth, and various federal and state welfare reforms (Bishop 1998)—reinforces the need for quality early child care. In Texas, many of these working mothers are in poor minority families whose needs are disproportionately great.

Report Focus and Outline

This report primarily addresses the question, What are the net benefits associated with targeted early childhood investments in Texas? Using the findings from the best studies now available, it attempts to document the costs and benefits that might be expected with such investments. In a sense, it thus also addresses the question, What are the net costs of *not investing* adequately the first time? In some circles, this might be expressed as the "pay-me-now-or-pay-me-later" question.

Section II reviews findings from the research on targeted early childhood investments. Section III describes the approach used to apply these findings to estimating the benefits and costs of investments for Texas children. Section IV presents the net benefits of early childhood investments—that is, their benefits minus their costs—from the three key perspectives: participating children and their families, taxpayers, and society. Special emphasis is given to taxpayers. Section V offers a brief look toward the future, suggesting possible next steps for Texas. A bibliography of key early childhood and related studies and an appendix characterizing early childhood programs and their components complete the report.

II. What the Research Says

This review briefly distills what the research has to say concerning both the costs and the likely effects of early childhood investments. It focuses on a subset of the available literature on such investments. Only those studies that met the relatively stringent selection criteria presented below have been included. To some extent, imposing such criteria limits the information available for projecting the likely effects of these interventions. Yet, doing so also ensures that the findings err on the conservative side and thus have greater credibility among policymakers.

Study Selection Criteria

Four criteria were used to select targeted early childhood intervention studies for review, as follows:

- *Use of an experimental or quasi-experimental design.* The ideal design method is an experimental design, making use of random assignment to treatment and control groups. Another appropriate method is the quasi-experimental design, with retrospectively chosen groups matched along key characteristics.
- *Sufficient sample sizes.* Large samples reduce the likelihood that differences between groups may be due to random variations. In addition, sample attrition lowers sample size over time, while differential attrition may skew results.
- *Potential benefits actually measured.* In many studies, outcomes that imply direct cost savings have not been directly measured. Theoretically, cost savings could be estimated or inferred from those outcomes that have been measured. This approach can be used only if there are well-documented relationships between the measured outcomes and the unmeasured cost-savings.
- *Sufficient long-term follow-up.* Most benefits necessarily accrue long after the intervention. Adequate time must have elapsed between the intervention and the measurement of outcomes for these benefits to have fully materialized.

Applying these criteria to the published early childhood literature yielded a short list of original studies along with several excellent research syntheses. Major findings from these studies are reviewed briefly in the following discussion.

Major Research Findings

The findings presented below are indicative of the benefits and costs associated with some of the more notable targeted early childhood interventions. Most of the studies yielded either point estimates or ranges of impacts or outcomes that could be applied to Texas.

- ❖ Barnett (1993) conducted a benefit-cost analysis of preschool education and found substantial benefits to society, preschool participants, and the general public. Specifically, the research estimated benefits to these three groups totaling over $100,000 per preschool participant. These benefits resulted largely from increased participant earnings, decreased crime, and lower rates of welfare dependency.

- Catterall (1987) investigated the social costs of dropping out of high school. The research pointed to a considerable loss in lifetime earnings for those students who dropped out which in turn lead to increased welfare, unemployment and criminal activity costs.
- Berrueta-Clement et al. (1984) studied the effects of preschool programs on various outcome measures. Their research focused on four main areas: school success, socioeconomic success, self-sufficiency, and social responsibility. Their results indicated that participation was significantly associated with increased academic achievement and employment levels, reduced likelihood of placement or retention in special education, lower levels of public assistance, and decreased criminal activity.
- Rand Corporation researchers (Karoly et al. 1998) conducted a comprehensive synthesis of the literature on targeted early childhood interventions and concluded similarly that such interventions yielded statistically significant results including:
    - Gains in cognitive and emotional development;
    - Increased levels of educational achievement;
    - Decreased levels of attendance in special education;
    - Higher high school graduation rates;
    - Decreased levels of crime or delinquency;
    - Increased income levels; and
    - Decreased welfare participation.
- In addition to these program-oriented studies, reports by Shore (1997) and Groginsky et al. (1998) have documented the effects of early childhood development and quality child care on brain development:
    - The brain's circuitry is highly sensitive to such environmental conditions as nourishment, care, surroundings and stimulation throughout the process of development beginning before birth.
    - The vast majority of connections or synapses are produced in the brain in the first three years of a child's life. The number of synapses increases rapidly through age three then holds steady through the first decade of life. After age ten, many unused synapses are eliminated.
    - Nurturing responsive caregiving plays a vital role in healthy development, directly affecting the formation of neural pathways.
    - Brain cell connections formed in the first year of life will remain largely in place for the rest of a child's life.
    - Early exposure to adverse conditions has more harmful and long-lasting effects on young children than had been suspected.
- Based upon this body of research, the elements of successful early targeted childhood interventions appear to include:

- *Service Intensity.* A minimum level of program intensity appears necessary to yield positive results. Positive outcomes have resulted from full-day and half-day care, and from weekly or monthly home visits.
- *Onset and Duration.* Most programs serve children 3 to 5 years of age. Beginning services in infancy could generate larger effects since an infant's environment can influence brain development. Research also shows that continuing services during a child's first few years of school may have few added benefits.
- *Quality.* High-quality services are necessary to generate long-term benefits. High quality includes small classes, high staff-to-child ratios, and the use of curricula that provide a solid base for the early school years.
- *Child- and Family-focused.* Child-focused programs with both center-based services and significant family/parental involvement (e.g., home visits, classroom participation, and parent group meetings) exhibit the best outcomes. While parental involvement is a critical component of success, their participation is insufficient to produce positive effects on children.

Finally, poverty also appears to play a very important role in impeding early childhood and subsequent development, independent of the effects of other factors (Haveman and Wolfe 1994, Duncan and Brooks-Gunn 1997, Huston 1999). Since poverty has negative effects, and given that many families slip in and out of poverty over time, this argues both for ameliorating the causes of poverty and for a strategy of targeting investments on the children of poor and near-poor families (e.g., Duncan and Brooks-Gunn 1997).

Taken as a whole, the literature provides a solid basis for supporting targeted early childhood investments. The National Conference of State Legislatures reports that governors in more than a dozen states—among them California, Florida, North Carolina, and Ohio—have encouraged their legislatures to enact early childhood initiatives in the past few years, citing the emerging brain research (Groginsky et al. 1998). The number of states launching early childhood initiatives continues to grow.

III. Approach

This section briefly describes the approach used to adapt findings from the best studies on targeted early childhood investments to estimate expected costs, benefits and net benefits for relatively intensive, large-scale interventions in Texas.

Illustrative Cohort: Year 2000 Texas Infants

The expected benefits and costs of such targeted investments for Texas have been estimated and projected for an illustrative cohort of Texas infants: that is, children 0-1 year old living in families with annual incomes at or below 200 percent of the federal poverty level in the year 2000. Based on Census estimates, there will be almost 152,000 poor and near-poor infants in the year 2000, the overwhelming majority (over 60 percent) of them in minority families, especially Hispanics. Should the expected net benefits estimated here meet with widespread acceptance, it would be relatively straightforward to perform the analysis for the larger at-risk population of Texas children, e.g., all Texas 0-4 year olds starting in the year 2000. The estimates of net benefits offered here err on the conservative side, by design.

Benefit/Cost Analysis

Cost estimates were initially prepared for two alternative approaches: first, for more intensive model programs (e.g., Perry Pre-School, Abecedarian); and second, for less intensive, large-scale programs (e.g., Head Start). The net benefit estimates that are presented here are based on the mean (or average) cost of more intensive model programs as well as their estimated benefits. This approach is based on the presumption that Texas will largely be interested in implementing targeted interventions that have a known likelihood of success.

Model programs tend to have more reliable outcomes and higher costs, but neither aspect has been observed under conditions of large-scale implementation. Some economies of scale may be achieved by introducing such a model intervention across a wider area and for more diverse groups. There is also likely to be a direct relationship between cost and expanding service capacity. Additionally, with the ongoing devolution of responsibility from state government to local administrators, the negative effects of going to scale may be minimized by increased local flexibility in design and control. The mean cost of more intensive, model programs has been used as the cost basis for this analysis.

Targeted early intervention programs are assumed to offer participating children (and to a limited extent, their families) a mix of services over a four-year period, spanning infancy up to their entry into public kindergarten for most children. The cost would be almost $9,600 per participant per year (expressed in 1998 dollars), offering largely child-oriented services, along with some family home visits, much along Perry Preschool lines.

Caveats and Limitations

The approach followed here must be viewed as illustrative and exploratory only. Thus, it necessarily carries with it a list of caveats and limitations, the more important of which are:

- Benefits and costs for eligible Texas infants are not directly measured but are estimated and projected into a necessarily uncertain future.
- Benefits (and cost savings) are based largely on estimates derived from small pilot and demonstration studies rather than full-scale programs.
- Projected costs may be higher than those presented here due to the inclusion of costs associated with eligible children enrolling in existing Early Start and related programs in Texas. Nearly one-fifth of poor Texas three year olds is served by these programs each year. Benefits associated with such participation have also been excluded from the computations.
- At the same time, targeted early childhood services might also be delivered more efficiently in the future, yielding the same or greater impacts at *lower* cost. To the extent that these programs are phased in more gradually or are targeted more tightly, costs may be less than assumed here.
- No other actions are assumed to intervene for young children in the future, whether by federal, state or local governments, by businesses or by the philanthropic sector. To the extent that efforts enacted by the 1999 regular session of the Texas Legislature serve to expand existing Early and Head Start as well as other pre-kindergarten programs, this assumption may not be valid.
- The analysis relies only on static estimates of remedial interventions, taxes and other relationships in Texas beyond the year 2000.
- Many benefits (and some costs) could not be quantified for this analysis, including for example savings to employers from reduced on-the-job remediation for workers lacking basic rather than 'hard' occupational skills. There are other unmeasured benefits, such as enhanced social development and self esteem, personal and family health care, and family formation, none of which are readily quantified (Berrueta-Clement et al. 1984).

Some of these limitations could be overcome with new, higher quality research (e.g., controlled experiments) and expanded, improved data collection and reporting.

IV. Net Benefits of Targeted Early Intervention

Preliminary estimates of the costs, benefits, and net benefits of targeted early childhood intervention for Texas infants whose families earn at or below 200 percent of poverty are presented below. All values are expressed in 1998 dollars and have been discounted to present value using a 2 percent discount rate.[1] These benefit and cost estimates are based on many sources, but are largely derived from the studies cited above and in the bibliography. For the reasons given above, the net benefit estimates provided should be viewed as very conservative.

Program Costs

The total cost of serving 151,830 poor and near-poor Texas infants in targeted early intervention programs over four years is estimated to be $5.65 billion (in 1998 dollars), as shown in Table 1. This figure presumes that these children would be served over a four-year period in an intensive, mixed-services program prior to enrollment in regular public kindergarten.[2] All of these costs are assumed to be borne by taxpayers and thus society as a whole; none are borne by participants or their families.

In addition, participation in the program also leads to increased education costs during late middle and high school, as children who would have dropped out instead remain in school longer and ultimately graduate at higher rates. These educational costs are largely borne by taxpayers. Participants and taxpayers subsequently share the costs of increased college attendance as well, though for participants and their families such costs are relatively modest.

Program Benefits

Participation in the targeted intervention is projected to yield a series of benefits for participating children and their families, as well as for taxpayers and for society as a whole. As indicated in Table 1, the largest expected benefits for participants are in the form of lifetime earnings gains stemming from raising high school graduation rates (by 47 percent)—and, to a much lesser extent, college graduation rates (by 10 percent)—of participating children. The value of increased earnings alone, estimated over their working life, is estimated to be worth almost $4 billion. Participant benefits are offset by corresponding increases in federal, state and local taxes and modest reductions in income from welfare.[3]

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[1] Use of a 2 percent rate of discount for computing present value follows Congressional Budget Office (CBO) guidelines for similar public investments as outlined in Lyon (1990). An alternative set of estimates was also generated using a 4 percent rate (per the CBO method); this set of estimates was broadly similar—i.e., positive net benefits for all three groups—though the magnitudes were smaller, of course.

[2] Some eligible (mainly poor) Texas four-year-olds are already being served in Early Start and related programs—e.g., Early Childhood Intervention services for severely developmentally disabled children—around the state, thus program costs and benefits may be overestimated somewhat. It is unclear whether failing to exclude these children from these estimates lends a positive or negative bias to the estimates of *net* benefits. The net effect of this exclusion is unknown.

[3] Welfare benefit impacts have been reduced to account for the implementation of the 5-year federal time limit on TANF benefits under the Personal Responsibility and Work Opportunity Reconciliation Act of

Table 1. Potential Benefits and Costs of Targeted Early Childhood Investments for Year 2000 Texas Infants with Family Incomes of 200 Percent of Poverty or Below

Benefit or Cost	Participant	Government/ Taxpayer	Society
Cost of Program		($5,650,253,086)	($5,650,253,086)
Reduction in Special Education Costs		$746,212,137	$746,212,137
Increase in Education Costs	($10,063,594)	($332,805,231)	($342,868,826)
Increase in Earnings/Output	$3,980,053,566	$1,990,026,783	$5,970,080,348
Increase in Federal Tax Revenues	($1,392,253,986)	$1,392,253,986	$0
Increase in State/Local Tax Revenues	($104,069,193)	$104,069,193	$0
Reduction in Crime Costs		$5,315,091,361	$5,315,091,361
Reduction in Welfare Costs	($578,279)	$578,279	$0
Net Benefit	$2,473,666,792	$3,564,595,143	$6,038,261,935

Note: Based on 1998 dollars at a 2% discount rate.

The primary benefits to taxpayers from early childhood investments are four-fold. First, reduced criminal activity is estimated to yield some $5.32 billion in benefits as participating children engage in more productive activities and require less attention from police, courts and prisons over the course of their lifetime. Such benefits have played a considerable role in earlier evaluations of similar investments (e.g., Barnett 1993, Greenwood et al. 1998). Second, it is evident that employers benefit from increased early interventions and improved education along with participants themselves. Employers benefit from enhanced output resulting from more productive workers, reduced downtime due to remediation, and other factors (National Center on the Educational Quality of the Workforce, n.d.). Increased output, above and beyond the value of participants' increased earnings, yields benefits to employers amounting to almost $2 billion. The third major benefit enjoyed by taxpayers comes through higher federal, state and local tax payments, amounting to almost $1.5 billion. Fourth, taxpayers also benefit from having to spend $746 million less on special education costs in the public school system as a result of early investments in these children. While taxpayers also experience a reduction in welfare expenditures, the value of these reductions is modest in light of federal welfare reforms.

Society benefits substantially from targeted early childhood intervention. Society's benefits are computed as the sum of participant and taxpayer benefits, less taxes and transfers (i.e., welfare). The two major societal benefits are the $5.97 billion increase in earnings and output and the $5.32 billion reduction in the costs of crime.

1996. Federal provisions will become effective in Texas as of March 2002 when the state's federal waiver expires.

Net Program Benefits

The net discounted benefits of targeted early childhood investments for participating Texas children and their families are estimated to exceed $2.47 billion (in 1998 dollars). All told, taxpayers enjoy net benefits amounting to nearly $3.57 billion. The net present value of early childhood investments to society is more than $6 billion, after subtracting the costs of the program intervention and increased educational expenses. It is very encouraging that net benefits are positive and substantial for all three groups and that those for taxpayers and society far exceed those for participants.

From the vantage point of benefit/cost analysis, the figure that really "counts" is the $6 billion net benefit to society (Boardman et al. 1996). Yet, taxpayers are the group that needs convincing most. With net discounted benefits approaching the four billion dollar mark, taxpayers—especially employers—should be actively interested. A public awareness campaign may be required to convince taxpayers of the merits of the case for increasing funding for early childhood interventions. According to the National Conference of State Legislatures (Groginsky et al. 1998), from California to Vermont states have been actively promoting awareness of the value of such interventions.

'Below-the-Line' Benefits

It is also important to point out many benefits that have *not* been included in these computations, not because they were thought to be inconsequential, but mainly due to the lack of reliable data, estimates or valuation procedures (Berrueta-Clement et al. 1984). Inclusion of these benefits would further increase the projected net benefits for participants, taxpayers and society, though to what extent is impossible to gauge. Among the more important of these unmeasured or excluded 'below-the-line' benefits are:

- *Health benefits.* Various health benefits, e.g., fewer emergency room visits and teen pregnancies, are expected from these interventions but their value has not been estimated.
- *Remediation cost savings for employers.* Much greater effects on output are expected as well, as employers save money on remediating employees' basic skills, but such cost savings could not be estimated with any degree of confidence.
- *Intergenerational effects.* Programs have begun targeting the entire family and could lead to parental benefits ranging from enhanced self-esteem to earnings and output effects from their own increased work effort.
- *Sibling spillover effects.* It is very likely that non-participating siblings may experience benefits as well, as parents implement some of the lessons learned in the intervention to them without incurring added program cost.
- *Social welfare benefit reductions.* Cost savings for such programs as Food Stamps, Medicaid, Medicare, SSI and public housing have not been factored into these estimates, in part due to the complexity and uncertainty of such effects.
- *Cognitive improvements.* Children's cognitive improvements (e.g., IQ increases) are important benefits as well, but are highly subjective and difficult to value.

- *Multiplier effects.* Expenditures on such interventions will also be associated with added benefits through the effects of the usual spending multipliers and may also induce further economic growth.
- *Increased civic participation.* The value of greater civic participation resulting from increased economic and related well being of participating children and their families is also subjective and has not been factored into these net benefit estimates.

Timing Issues

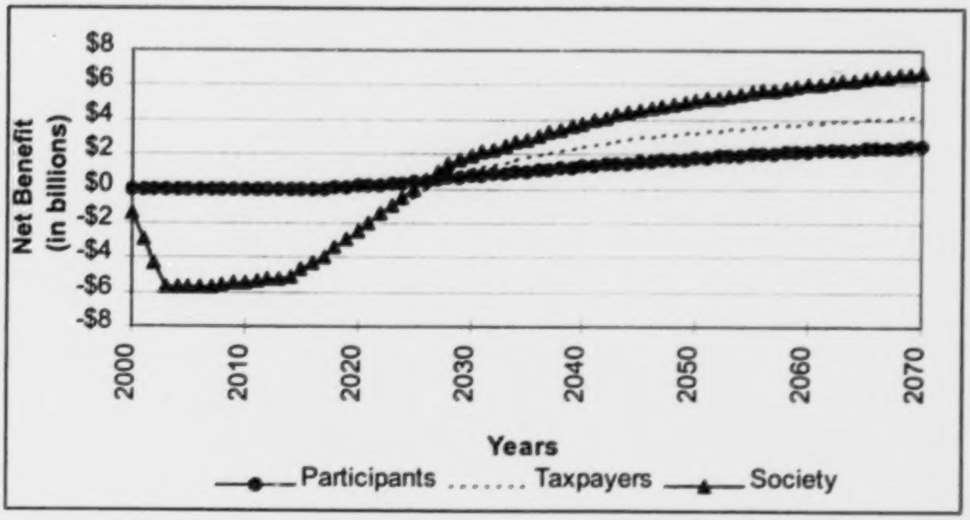
The timing of these costs and benefits presents a very serious challenge for policymakers at all levels, not to mention taxpayers. Other things being equal, a dollar now is preferred to one a year (or more) hence. This is the basic rationale for discounting future benefits and costs to render them in present value terms. However, even with estimated net benefits from these interventions reaching into billions of dollars, there is reason to be concerned about their distribution over time. Figure 1 illustrates this dilemma and the reason for concern.

Basically, while net benefits accrue to all three groups over their lifetimes, for the foreseeable future—as long as 25-30 years with either a 2 percent or 4 percent discount rate—taxpayers and society are in a net *cost* position. Participants begin to experience benefits almost immediately of course. It is only after sufficient time has passed for participating children to become productive young adult workers, with higher earnings and reduced criminal involvement, that net costs are transformed into net benefits for taxpayers and society. The basic question is whether these groups have sufficiently long time horizons to see the merits of making such investments.

Policymakers, and hopefully taxpayers and society, should view early childhoodefforts the same way they do public education. Public education is an investment that traditionally occurs over 13 years and is expected to yield a wide range of important benefits (e.g., more informed and engaged citizens, young adults ready to enter either college or the workplace) many years after the initial investment has been made. In a sense, early childhood initiatives simply stretch the span of this educational investment by a few years at the front end. Early childhood investments can be expected to yield positive net benefits for taxpayers and society when these individuals reach their mid-to-late twenties in much the same way that our basic investments in public education now do. The payoffs remain substantial for all concerned.

Figure 1. The Timing of Net Benefits from Targeted Early Childhood Interventions, for Texas Participants, Taxpayers, and Society

Note: Based on 1998 dollars at a 2% discount rate.



V. Looking to the Future

Texas taxpayers—encouraged by the promise of long-term net returns in the billions of dollars using even the most conservative assumptions and procedures—may well be convinced that targeted early childhood interventions merit their support. This section looks to the future, suggesting some of the next steps Texas might take towards developing an early childhood agenda. Such steps parallel those suggested by the Texas Comptroller of Public Accounts (1999) and House Concurrent Resolution 271 introduced in the 1999 legislative session, as well as earlier national efforts (e.g., the Carnegie Task Force 1994, *The Common Good* 1989).

The best way for Texas to proceed is to identify and invite to the table all of the early childhood stakeholders from around the state, creating a bipartisan, blue ribbon Task Force on Early Childhood. This Task Force should be comprised of business leaders, statespersons, early childhood development providers and experts, the philanthropic community, workforce board representatives,[4] parents, and other interested parties. This Task Force should begin the work of developing a comprehensive early childhood investment agenda to guide Texas well into the 21st Century. A number of Texas foundations have been actively supporting community-based initiatives for at-risk children for some time. They might be enlisted to provide support for this important effort as well.

Among the activities the Task Force might pursue over the next 12 to 18 months are the following:

- Conducting a thorough 'environmental scan' to identify existing early childhood programs in the state and the resources supporting them. Special attention should be given to identifying and documenting those programs that have been highly successful for children and their families.
- Establishing a nationally recognized team of early childhood development and evaluation experts to advise Texas policymakers on the design of a comprehensive research and evaluation strategy for the state's targeted early childhood initiatives. This effort might well begin by documenting gaps in existing data collection and reporting and in our knowledge of key aspects of and outcomes from these interventions.
- Identifying and analyzing a broad range of alternatives for financing early childhood investments in the future. States and localities have become very creative in financing expanded developmental opportunities for their young children in recent years.

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[4] Texas workforce boards now have considerable discretion in setting policies for and expending large sums of child care funding at the local level.

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Appendix A

TARGETED EARLY CHILDHOOD INTERVENTION TYPOLOGY

Targeted early childhood interventions come in various program types and can be operated either on a model or large-scale basis. These are outlined below with key examples given.

PROGRAM TYPES

Child-focused Programs

- Preschool, Head start, and child care programs
- Typically part-day and part-year programs
- Ages: 3-5 year olds
- Preschool and Head Start are designed to promote child development and improve children's readiness to succeed in school.
- Preschool and Head Start primarily offer educational components, but may also provide health and development screening, parent involvement, and social service assistance.
- Child care programs typically offer full-day care from birth to school age. They seek to promote child development and to free parents for work. Quality is inconsistent and often lacks child development components.

Family-support Programs

- Typically serve families with children under 3 years of age (sometimes older) through weekly or monthly home visits, classes, and drop-in centers, as well as child education.
- Seek to involve parents in their children's development and to strengthen their parenting skills so that parents will help to create, sustain, and amplify positive children's outcomes.
- Some programs only focus on parenting and do not include child component. These programs are called "parenting programs."

Two-generation Programs

- Link programs for children and parenting support with adult-oriented services such as job training and adult education.
- Seek to promote positive outcomes for both children and parents and to help families escape poverty.
- Often do not design or manage own services for children and family. Refer families to local agencies so have little control over quality.

OPERATING MODES

MODEL PROGRAMS—

Early Training Program (Murfreesboro, TN)

- Child-focused program
- Center-based care with home visits
- Entry Ages: 4-5 year olds
- Summer part-day program; families visited every 1-2 weeks during the school year
- Program length: 1-2 years

- Annualized cost:[1] n/a

High/Scope Perry Preschool Project (Ypsilanti, MI)

- Child-focused program
- Center-based care with home visits
- Entry Ages: 3-4 year olds
- School-year, part-day program, with five 90-minute classes each week for 7 months in each of two successive years
- Teachers made weekly 90 minute home visits
- Program length: 1-2 years
- Uniform curriculum promoting intellectual, social and physical growth through learning activities
- Annualized cost: $8,887

Syracuse Family Development Research Program (Syracuse, NY)

- Child/Parent program
- Center-based care with home visits
- Part-day (up to 1 year olds) to full-day (up to 5 years old) year-round family-style day care
- Entry Age: prenatal
- Parent has home visits starting in last trimester. Home visits increase to half-day for five days per week for children 6-15 months of age.
- Full-day child care for children 15 months to 5 years old.
- Program length: 5 years
- Provide educational, nutrition, health, safety and human service resources
- Annualized cost: n/a

Carolina Abecedarian (Chapel Hill, NC)

- Child-focused program
- Center-based care
- Entry Ages: 6 weeks to 3 months
- Full-day preschool year-round with educational component
- Parent program begins once child enters school
- Program length: 5-8 years
- Systematic development curriculum—intellectual/creative, social/emotional, language stimulation. All curriculum tailored to at-risk children.
- Annualized cost: $11,520

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[1] All annualized costs are expressed in 1998 dollars.

Project Carolina Approach to Responsive Education (CARE—Chapel Hill, NC)

- Child/Parent program
- Center-based care with home visits
- Modeled after Abecedarian Project with an added family support component
- Entry Ages: 4 weeks (home visits), 6 weeks (center care)
- Full-day preschool, year-round with educational component
- Family support component—weekly home visits for first 3 years to help parents learn effective problem-solving strategies, skills related to child development, assist with signing up for additional programs (e.g., WIC). Once child was older, home visits varied by need. Parent support group meetings monthly.
- Systematic development curriculum—intellectual/creative, social/emotional, language stimulation. All curriculum tailored to at-risk children.
- Program length: 5 years
- Annualized cost: n/a

Infant Health and Development Program (8 sites)

- Child/Parent program, built on Abecedarian and Project CARE, but targeted on premature infants
- Center-based care with home visits
- Entry Ages: birth (home visits), 1 year olds (center care)
- Full-day care year-round with educational component (years 2 and 3)
- Program length: 3 years
- Home visits 1 per week in year 1, moving to 1 per two-weeks in year 2
- Bimonthly parent meetings (years 2 and 3)
- Annualized cost: $10,725

Elmira Prenatal Early Infancy Program (Elmira, NY)

- Parent-focused program
- Home visits by trained nurses
- Levels of treatment: Level 1, 1-2-year olds receive sensory and developmental screening plus free transportation for prenatal and child care; Level 2, Level 1 services plus monthly nurse visits during pregnancy; and Level 3, Level 2 services plus monthly nurse visits through child's 2nd birthday.
- Begins at up to 30th week of gestation
- Program length: over 2 years
- Annualized cost: $2,830

Yale Child Welfare Research Program (New Haven, CT)

- Full-day child care

- Home visits
- Pediatric care
- Social work services
- Developmental screening
- Child care
- Entry Ages: prenatal
- Length: 5 years
- Annualized cost: $12,007

Houston Parent-Child Development Center (Houston, TX)

- Parent/child program
- Center-based care with home visits
- Entry Ages: 1(home visit) and 2(center) year olds
- Part-day child care and center-based program for parents
- Home visits 2-3 times per month lasting 11/2 hours plus six family workshops
- Parent-child piece composed of 4 mornings per week for 9 months during child's second year in which parents taught mothering skills
- Nursery school had strong cognitive and language component
- Program length: 2 years
- Annualized cost: n/a

San Antonio Avance (San Antonio, TX)

- Parent/Child, two-generational, program
- Center-based care with home visits
- Modeled after Houston PCDC
- Weekly classes (3 hours) with 1 visit per month
- Services to promote development of child through parenting education, early childhood education, and high-quality care.
- Services to promote family self-sufficiency through adult education, vocational education, and enhanced employment.
- Entry Ages: birth to 2 years old
- Program length: up to 2 years
- Annualized cost: n/a

New Chance (16 sites)

- Free child care in high-quality centers. No special curriculum.
- Full-day full-week program for mothers including life skills, parenting education, and pediatric health education, as well as GED prep or adult education.

- Vocational training, internships, and job placement.
- Case management with biweekly meetings for 1 year
- Entry Age: 2 year olds
- Program length: 1.5 years
- Annualized cost: $10,518

LARGE SCALE PROGRAMS—

Project Head Start

- Child-focused program
- Center-based care with home visits
- Entry Ages: 3 year olds
- Preschool program
- Program length: 1 year
- Contracts with social service or community agency
- Provides preventive medical care, nutritious meals, and curriculum designed to enhance children's cognitive skills and school readiness.
- Annualized cost: $4,703

Chicago Child-Parent Centers (Chicago, IL)

- Child-parent program
- Center-based care
- Entry Ages: 3-4 year olds
- Preschool part-day program
- Intervention services during first years of school
- Require half-day parental participation (e.g., classroom volunteer, adult education)
- Program length: 3-6 years
- Part of school system
- No uniform curriculum, but classroom activities are designed to promote basic language and reading skills, social and psychological development.
- Provides some nutritional and health services
- Annualized cost: $4,219

Even Start

- No child care standards—determined locally. Usually obtain services from local Head Start program.
- Parent education and job training provided by community college. Varies by locality.
- Entry Ages: birth to 8 year olds
- Program length: 1 year
- Annualized cost: $4,398